c) <u>REMARKS</u>

The claims are 11, 12 and 14-22 with claims 11 and 12 being independent. Claims 11 and 12 are amended pursuant to page 11, line 16 to page 12, line 11 of the specification.

Claims 11, 12 and 14-22 were rejected as obvious over Pai et al. '102 in view of Borsenberger (pages 330-338) and further in view of JP '265, Kawamorita '214 or Kovacs '313. The grounds of rejection are respectfully traversed.

Prior to addressing the grounds of rejection, Applicants wish to briefly review certain key features and advantages of the present claimed invention. One aspect of the present invention, according to claim 11, relates to a process cartridge provided with an electrophotographic photosensitive member having a charge-generating layer generating excessive charges which are not consumed in the electrophotographic process and are normally accumulated therein when the charge-generating layer is irradiated with a semiconductor laser light having a wavelength from 380 to 500 nm.

Another aspect of the present invention, according to claim 12, relates to an electrophotographic apparatus provided with a semiconductor laser light having wavelength of from 380 to 500 nm as an exposure means for an electrophotographic photosensitive member. The semiconductor laser light has sufficient energy to make the charge-generating layer of the electrophotographic photosensitive member generate excessive charges which are not consumed in the electrophotographic process and are then accumulated therein. According to the above-described process cartridge and electrophotographic apparatus, the accumulated charges in the charge-generating layer, if

unchecked, act to reduce the quality of the electrophotographic images. However, the charge-transfer material of formulas (1) to (4) of the present invention serve to alleviate the charge accumulation in the charge-generating layer and to therefore improve image quality.

Pai discloses an electrophotographic imaging member comprising a substrate, a charge carrier generating layer and a charge transport layer, which is virtually transparent to the light for xerography. This disclosure is found at Pai, column 10, lines 1-6 as provided below:

"The charge transport layer should exhibit negligible, if any, discharge when exposed to a wavelength of light useful in xerography, e.g., 4000 Angstroms to 8000 Angstroms. Therefore, the charge transport layer is substantially transparent to radiation in a region in which the photoconductor is to be used."

Pai discloses charge transport materials generally useable in the present invention. However, Pai is devoid of any disclosure about the combination of a charge transport layer of formulas (1) to (4) and a charge-generating layer in which excessive charges are accumulated in response to the exposure of the semiconductor laser light of 380 - 500 nm. Pai fails to suggest the alleviation of the accumulation of the excessive charges in a charge-generating layer. Likewise, Pai is silent about the strength of the exposure light for xerography. Pai is also silent as to remediating accumulation of excess charges by use of the instant charge transport layers.

Borsenberger discloses a photoreceptor with perylene diimide charge generation layers showing maximum sensitivity of from 450 to 600 nm. However, Borsenberger does not disclose that excessive charges accumulated in the charge-

generating layer can be alleviated with the charge transporting materials of formulas (1) to (4) of the present invention. JP 01-84265 merely discloses an electrophotographic apparatus having semiconductor laser light whose wavelength ranges from 400 to 500 nm. Kawamorita merely explains that the wavelength of a semiconductor laser beam ranges from 400 to 800 nm. Further, Kovacs discloses a color xerographic printing system provided with a quad semiconductor laser structure emitting four different wavelength laser beams of 450, 540, 670 and 830 nm. However, JP '265, Kawamorita and Kovacs are silent concerning alleviating accumulation of excess charges in a charge generating layer exposed to semiconductor laser light by a specific charge transport layer.

Accordingly, there is no motivation to combine Pai '102 with the secondary and tertiary references to solve a specific problem. Having failed to recognize the problem solved by Applicants, how can the prior art be motivated to find a solution to such an unknown problem. Unobviousness can reside in discovery of the cause of a problem, the solution of which employs a combination of old elements. In re Sponnable, (CCPA 1969), 160 U.S.P.Q. 237. Even if by hindsight, the cause of the problem, once recognized, may suggest the solution, nevertheless, the discovery of the reason for the problem can impart patentability for the solution. In re Nomiya, (CCPA 1975), 184 U.S.P.Q. 607.

The problems solved by the instant invention result from accumulation of excess charges. Applicants have noted a large variation in potential after repeated use and significant image defects, including ghosting. These problems are illustrated in, for example, Tables 2 and 9 in which large variations in potential after repeated use and

ghosting were evident for the comparative examples. Similar results are observed in Tables 10 and 17.

As noted above, a factor causing such problems is the accumulation of charges, i.e., excitons and charge carriers, generated by radiation of short-wavelength light having a high energy. Such accumulation changes the charging characteristics and sensitivity of the photosensitive member. Applicants have discovered that the accumulation of excitons and carriers can be suppressed by an electron transfer reaction with a specific charge transfer material which acts to (i) suppress the tendency to change in potential and memory phenomenon during repeated use and (ii) forms stable, high quality images.

Specifically, the present inventors have solved the problem caused by employing short wavelength semiconductor laser light for exposure (which is coherent light of high energy) by utilizing a charge transfer layer having a specific transmittance and containing a specific charge transfer material. At higher transmittances of the charge transfer layer, the short wavelength semiconductor laser causes more problems for the charge-generating material. The instant charge transfer material alleviates such problems by suppressing deterioration of the charge-generating material by preventing accumulation of excitons and charge carriers.

As set forth on specification pages 52, 67, 76 and 77, when a semiconductor layer laser having a longer oscillation wavelength of 780 nm was used as a light source, then poor results were obtained. Accordingly, Applicants have discovered that when using a short wavelength semiconductor as the exposure light source (compared with a longer

wavelength semiconductor source), then the claimed charge transport layer having a specific conductance will remedy the problems of variations in potential and image defects.

Clearly, the problems engendered by use of laser irradiation, which are solved by the present invention, are not disclosed in Pai. The present invention does not merely increase transmittance of the charge transport layer as in Pai, but acts to suppress the deterioration of the charge-generation layer caused by the high energy of the laser radiation.

The defects of Pai are not remedied by Borsenberger. Borsenberger merely discloses that perylene compounds absorb at wavelengths from 450 to 600 nm. Borsenberger does not teach use of a semiconductor laser light. Borsenberger also fails to teach or suggest the problems caused by deterioration of a charge-generation layer by high energy semiconductor laser light or the need to employ specific charge transfer material in order to suppress such deterioration.

None of the references, JP '265, Kawamorita or Kovacs, disclose the technical problems solved by the present invention. Further, Kawamorita does not suggest using a short wavelength semiconductor laser. The following passage in Kawamorita "which is the wavelength range of the semiconductor laser beam" is related only to "an infrared range of about 800 nm". See column 1, line 37-39. JP '265 merely teaches a broad wavelength range from 400-600 nm and dyes with absorptions at 400-500 nm and 500-600 nm. No charge transport material is specified. Kovacs employs a quad semiconductor laser at 450, 540, 670 and 830 nm.

Wherefore, Applicants submit that none of the references, whether alone or combined, discloses or suggests the present claimed invention nor renders it unpatentable.

Accordingly, it is respectfully requested that the claims allowed and the case passed to issue.

Based on the above amendments and arguments, reconsideration and entry of the Amendment are requested.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Attorney for Applicants

Registration No. 24947

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

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